US Army Corps
of Engineers
North Central Division

GREAT LAKES LEVELS
UPDATE NO. 57
APRIL 2, 1990

Precipitation in the Great Lakes basin was below average in March. Again, it was a month of wide variation. The Lake Erie basin, which had 2-1/2 times its average amount of precipitation last month, was dry this month with about 3/4 its average precipitation. Lake Superior was the wettest basin, at about 6% above average. The following tables show estimated precipitation for March and for the year to date.

Provisional
Great Lakes Precipitation (inches)

I. March

Basin	1990*	1900-89 Average	Diff.	% of Ave.
Superior	1.8	1.7	+0.1	106%
Mich-Huron	2.1	2.1	0	100%
Erie	2.1	2.7	-0.6	78%
Ontario	2.3	2.6	-0.3	88%
Great Lakes	2.1	2.2	-0.1	95%

II. Year to Date

Basin	1990*	1900-89 Average	Diff.	% of Ave.
Superior	4.9	5.0	-0.1	98%
Mich-Huron	6.1	5.9	+0.2	103%
Erie	9.7	7.2	+2.5	135%
Ontario	8.5	7.7	+0.8	110%
Great Lakes	6.6	6.1	+0.5	108%

* Estimated

During the past 12 months, total precipitation on the Great Lakes basin has been near average. Lake Superior has accumulated about 3.1 inches (10%) below average precip; Lakes Michigan-Huron have also had total precip about 2.9 inches (9%) below average. The lower Great Lakes, Erie and Ontario, have both accumulated above average precipitation -- about 4.9 inches (14%) and 2.4 inches (7%), respectively.

The National Weather Service is forecasting near-average precipitation during April for all of the Great Lakes. April's temperature forecast is also for near-average throughout the Great Lakes basin.

The water levels of Lakes Superior and Michigan-Huron continue to be well below average for this time of year. Lakes St. Clair and Erie held almost steady in March and continued above average. Lake Ontario levels continued above average in March.

All of the Great Lakes are in their seasonal rise towards their summer highs. The forecast for Lake Ontario, at this time, does not reflect any significant actions that the International St. Lawrence River Board of Control needs to take this spring to reduce outflows during the Ottawa River freshet.

Gravel ... cobbles; why does the Corps of Engineers use these materials to nourish beaches? Won't gravel be carried along the shore to cover up a nice sand beach a few miles down the shore? Our previous shore processes discussions have prompted several readers to send in such questions. We are glad to help answer your questions as space permits.

To answer these questions, try a simple experiment. Fill a sturdy glass jar about halfway with a mix of sand and gravel. Fill it the rest of the way with water; then screw on the cap and shake (the jar). When you set the jar down and let everything settle out, you will see that the gravel settles first, then the coarse sand, and then the fine sand.

The same thing happens on the shoreline when waves stir up the beaches. The gravel tends to be deposited beneath the sand. It doesn't take much sand over the gravel

to provide a good, firm footing for volleyball or sunbathing. But gravel and cobbles, which make up part of most Great Lakes natural beaches, play an important role in protecting the shoreline and bluff from erosion. The small stones are difficult for waves to stir up, so they tend to form a protective cover over the lake bed clays.

Sand, on the other hand, is easily suspended by waves. It is easily moved lakeward off the beach when water levels rise; and suspended sand tends to wear away the clay. Therefore, ton for ton, sand does not protect the shoreline as well as cobbles and gravel, which is why the Corps prefers to nourish beaches with coarser material. If the lake bed clay can be protected from erosion when water levels are low, then the job of protecting the bluff when water levels are high may be much easier.

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